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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/613,695

07/03/2003

Richard Bardsley

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09/14/2006

EXAMINER

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ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/613,695

Applicant(s)

BARDSLEY ET AL.

Examiner

Shi K. Li

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 8 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 8 recites the limitation "wherein the data input signal is in the frequency range of four decades below the bit rate of the data input signal" in lines 2-3 of the claim. Instant specification does not describe the limitation in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 7 recites the limitation "the low frequency amplifier" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

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6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Feldman et al. (U.S. Patent 6,295,272 B1).

Regarding claims 1 and 11, Feldman et al. discloses in FIG. 26 a receiver for recovery of high speed data and subcarrier data (equivalent to data tag of instant claim). FIG. 26 comprises a photodetector 651, an amplifier 658, and two branches 664 for high speed data and 666 for subcarrier data. Feldman et al. teaches in FIG. 24 high speed data module 552.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Feldman et al. (U.S. Patent 6,295,272 B1) in view of Kartalopoulos ("Introduction to DWDM Technology" by Kartalopoulos, IEEE Press, 2000, pp. 115-117).

Feldman et al. has been discussed above in regard to claims 1 and 11. The difference between Feldman et al. and the claimed invention is that Feldman et al. does not teach a PIN photodiode or an avalanche photodiode (APD). However, PIN and APD are the most common types of photodetectors available in the market. For example, Kartalopoulos teaches in Chapter

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7 photodetectors and teaches in Section 7.3 and 7.4 PIN and APD, respectively. One of ordinary skill in the art would have been motivated to combine the teaching of Kartalopoulos with the optical receiver of Feldman et al. because APD and PIN are fast response that provide a measurable output for a small amount of light, are easily reproducible and are economical for applications in high-speed optical communication. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use either a PIN or APD as a photodetector, as taught by Kartalopoulos, in the optical receiver of Feldman et al. because APD and PIN are fast response that provide a measurable output for a small amount of light, are easily reproducible and are economical for applications in high-speed optical communication.

10. Claims 3-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feldman et al. (U.S. Patent 6,295,272 B1) in view of Ames et al. (U.S. Patent 6,528,777 B2).

Feldman et al. has been discussed above in regard to claims 1 and 11. The difference between Feldman et al. and the claimed invention is that Feldman et al. does not teach in FIG. 16 a transimpedance amplifier with differential output or AC coupling. However, these technologies are well known in the art for optical receivers. For example, Feldman et al. teaches in col. 25, lines 64-66 AC coupling. Ames et al. teaches in FIG. 1 an optical receive section 200 with optical receiver 210 and post-amp 250. Ames et al. teaches in FIG. 2 transimpedance amplifier 220 with differential output and AC coupled to the post amp 250. One of ordinary skill in the art would have been motivated to combine the teaching of Ames et al. with the optical receiver of Feldman et al. because a transimpedance amplifier converts the sensitive photocurrent into an output voltage signal that is suitable for further process using regular electronics. Thus it would have been obvious to one of ordinary skill in the art at the time the

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invention was made to use a transimpedance amplifier with differential output, as taught by Ames et al., in the optical receiver of Feldman et al. because a transimpedance amplifier converts the photocurrent into an output voltage signal that is suitable for further process using regular electronics.

Regarding claim 7, Ames et al. teaches operational amplifier.

11. Claims 6, 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feldman et al. (U.S. Patent 6,295,272 B1) in view of Jayakumar (U.S. Patent Application Pub. 2003/0025957 A1).

Feldman et al. has been discussed above in regard to claims 1 and 11. Regarding claims 6-7, the difference between Feldman et al. and the claimed invention is that Feldman et al. does not teach in FIG. 26 low frequency amplifier for data tag module. Feldman et al. teaches in FIG. 24 a low pass filter 558 and amplifier 560. It is obvious to one of ordinary skill in the art to combine the LPF with the amplifier to become a low frequency amplifier. For example, Jayakumar teaches in FIG. 4 receiver for high speed payload data and low speed management data. FIG. 4 comprises narrowband transimpedance amplifier 58 for filtering out high speed data and only passing low speed data. One of ordinary skill in the art would have been motivated to combine the teaching of Jayakumar with the optical receiver of Feldman et al. because a narrowband amplifier filters out high speed data and passes only the low speed management data. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the low pass filter and amplifier to become a low frequency, as taught by Jayakumar, in the optical receiver of Feldman et al. because a narrowband amplifier filters out high speed data and passes only the low speed management data.

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Regarding claims 8-10, it is understood that data carried by the subcarrier channel has low data rate than the high speed payload data. The exact data rate depends on applications. Feldman et al. teaches in col. 4, lines 28-29 a data rate in the range of 0.3-4 KHz for subcarrier channel and in col. 7, lines 39-40 a high speed data rate of 1 GHz or faster. Feldman et al. also teaches in col. 13, line 5 that management data is at a maximum of about 200 Kbps. Jayakumar teaches in paragraph [0020] 2.5 Gb/s or 10 Gb/s for high speed data and in paragraph [0073] a 1 Mb/s for the sub-carrier data. The range of data rates taught by Feldman et al. and Jayakumar covers the range of the claimed invention. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use any of the high speed data rate from 1 Gb/s to 10 Gb/s and any of the subcarrier channel data rate from 200 Kb/s to 1 Mb/s. It all depends on the applications and/or as a design choice. This supporting rationale is based on a recognition that the claimed difference exists not as a result of an attempt by applicant to solve a problem but merely amounts to selection of expedients known to the artisan of ordinary skill as design choices.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

skl

7 September 2006



Shi K. Li
Patent Examiner